



The Remote Welding System seals canisters in a radiation environment.

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Sealed for Protection

TMI-II Dry Shielded Canister Remote Welding System

Radioactive material from the Three Mile Island-II core has been in wet storage at the INEEL's Test Area North facility for many years. The core debris had been stored underwater in fuel canisters. As agreed with the state of Idaho, DOE had to remove the spent fuel from wet

storage and place it in a newly constructed and Nuclear Regulatory Commission-permitted dry fuel storage facility by June 1, 2001. Before moving fuel from wet storage, it had to be heated and vacuum dried, then inserted into dry storage canisters. The

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In addition to increasing worker safety and efficiency, this technology provides a cost avoidance of more than \$1 million.



Idaho National Engineering and Environmental Laboratory

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canisters were “overpacked” in a Nuclear Regulatory Commission-approved shipping cask. Because of the radiation field associated with the TMI fuel and core

debris, sealing the fuel with a 66-inch diameter 4.5-inch thick radiological shield plug, and attaching a 1.5-inch thick cover plate presented a major challenge. A welding system with the ability to be remotely operated in a radiation environment was needed. In FY 2001, the **TMI-II Dry Shielded Canister Remote Welding System** met all the technical and safety requirements for a remotely operated and monitored system

and was used to weld both the shield plug and the canister cover. This welding system has the unique capacity of two independently operated weld heads—essentially doubling the welding rate.

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Benefits:

- Provides cost avoidance of more than \$1million
- Increases worker efficiencies and worker safety—eliminates direct worker exposure to radiation
- Accelerates schedule—met enforceable milestone more than one month ahead of schedule

The cask containing a canister is being moved to a storage area where it will stay until it is transported to the dry storage facility.



The cask is placed in dry storage units